

We claim:

1. A system comprising
  - an electrode structure which, in use, is deployed in contact with heart tissue,
  - an interface including
    - 5 a controller coupled to the electrode structure operating to condition the electrode structure to perform a diagnostic or therapeutic procedure and to monitor events during the procedure,
    - 10 a display screen, and
    - an interface manager coupled to controller and the display screen and including a first function to generate a display comprising an image of the electrode structure at least partially while performing the procedure, and
    - 15 a second function to annotate the image in response to events monitored by the controller.
  2. A system according to claim 1 wherein the second function generates a marker on the image identifying an event monitored by the controller.
  3. A system according to claim 1 wherein the second function also generates a marker on the image in response to operator input.
  4. A system according to claim 1 wherein the second function includes means for selecting a map according to which events monitored by the controller are annotated to the image.
  5. A system according to claim 4 wherein the interface includes a file manager function to store, retrieve, or manipulate

the map as a file record.

6. A system according to claim 1

wherein the interface includes a file manager function to store, retrieve, or manipulate the annotated image as a file record.

7. A system according to claim 1

the controller generates commands to establish an operating condition for the electrode structure at least partly in response to operator input, and

5 wherein the interface manager includes an input to receive operator input and to transmit operator input to the controller.

8. A system according to claim 1

wherein the controller is operable in one mode to pace heart tissue using the electrode structure and to record electrical activity as a result of pacing, and

5 wherein the second function annotates the image to map the electrical activity.

9. A system according to claim 8

wherein the image includes electrode images corresponding to electrodes on the electrode structure, and

5 wherein the interface manager includes an input to select an electrode on the electrode structure as a pacing electrode in response to selection of the corresponding electrode image on the display screen.

10. A system according to claim 8

wherein the image includes electrode images corresponding to electrodes on the electrode structure, and

5 wherein the interface manager includes an input to select an electrode on the electrode

structure as a recording electrode in response to selection of the corresponding electrode image on the display screen.

11. A system according to claim 8

wherein the second function generates an early activation map including a marker on the image where early depolarization is recorded.

12. A system according to claim 8

wherein the second function generates a fractionation map including a marker on the image where a fractionated electrogram is recorded.

13. A system according to claim 8

wherein the second function generates a good pace map including a marker on the image indicating a similarity between paced electrograms and non-paced electrograms.

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14. A system according to claim 8

wherein the second function generates a concealed entrainment map including a marker on the image where entrainment is recorded.

15. A system according to claim 8

the controller generates commands to pace heart tissue or to record electrical activity in response to operator input, and

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wherein the interface manager includes an input to receive operator input and to transmit operator input to the controller.

16. A system according to claim 15

wherein the input includes data fields defining a pacing configuration of the electrode structure to conduct pacing pulses from a stimulator coupled to the controller.

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17. A system according to claim 16

wherein the interface manager includes a file manager function to off-load or up-load data

files defining the pacing configuration.

18. A system according to claim 15  
wherein the input includes data fields  
defining a sequence of pacing pulses applied to the  
electrode structure from a stimulator coupled to the  
controller.  
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19. A system according to claim 18  
wherein the interface manager includes a  
file manager function to off-load or up-load data  
files defining the sequence.

20. A system according to claim 15  
wherein the input includes data fields  
defining a recording configuration of the electrode  
structure to conduct electrical signal data to a  
recorder coupled to the controller.  
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21. A system according to claim 20  
wherein the interface manager includes a  
file manager function to off-load or up-load data  
files defining the recording configuration.

22. A system according to claim 15  
wherein the input includes data fields  
defining a sequence of conveying electrical signal  
data from the electrode structure to a recorder  
coupled to the controller.  
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23. A system according to claim 22  
wherein the interface manager includes a  
file manager function to off-load or up-load data  
files defining the sequence.

24. A system according to claim 1 or 8  
wherein the first function generates a real  
image of the electrode structure acquired by an  
imaging device in the interior body region.

25. A system according to claim 1 or 8  
wherein the first function generates an  
idealized graphical image of the electrode

structure.

26. A system according to claim 1 or 8 wherein the first function includes an adjustment function to alter appearance of the image in response to operator input.

27. A system according to claim 1 or 8 wherein the first function includes a navigation function that generates in the first display an output showing location of a roving element, deployed in the patient, relative to the electrode structure.

28. A system according to claim 1 or 8 wherein the first function includes a navigation function that generates in the first display a proximity-indicating output showing the proximity of a roving element, deployed in the patient, to the electrode structure.

29. A system according to claim 1 or 8 wherein the interface manager includes an input to receive patient data identifying the patient and an output to process patent data as a data base record for storage, retrieval, or manipulation.

30. A system according to claim 29 wherein the output processes data relating to the image in association with the patient data.

31. A method for mapping myocardial tissue comprising the steps of

deploying an electrode structure in contact with myocardial tissue,

generating a display comprising an image of the electrode structure,

causing the electrode structure to pace myocardial tissue and recording paced electric events in myocardial tissue while the image is

- 10        displayed for viewing, and  
              annotating the image in response to the  
              paced\_electrical events which are recorded.
32. A method according to claim 31  
      and further including the step of ablating  
      myocardial tissue.
33. A method according to claim 31  
      wherein the display shows a real image of  
      the electrode structure acquired by an imaging  
      device.
34. A method according to claim 31  
      wherein the display shows an idealized  
      graphical image of the electrode structure.
35. A method according to claim 31  
      and further including the step of altering  
      appearance of the image in response to operator  
      input.
36. A method according to claim 31  
      and further including the step of altering  
      an operating condition of the electrode structure in  
      response to operator input.
37. A method according to claim 31  
      and further including the step of  
      communicating operator input using the display to  
      alter an operating condition of the electrode  
      structure.
- 5        38. An interface for association with an  
              electrode structure which, in use, is deployed in  
              contact with heart tissue to perform a diagnostic or  
              therapeutic procedure, the interface comprising  
              a display screen, and  
              an interface manager coupled to the display  
              screen and including a first function to generate a  
              display comprising an image of the electrode  
              structure at least partially while performing the

10 procedure, and a second function to annotate the image to show an anatomic feature.

39. An interface according to claim 38 wherein the interface manager includes a file manager function to store, retrieve, or manipulate the annotated image as a file record.

40. An interface according to claim 38 wherein the first function generates a real image of the electrode structure acquired by an imaging device in the interior body region.

41. An interface according to claim 38 wherein the first function generates an idealized graphical image of the electrode structure.

42. An interface according to claim 38 wherein the first function includes an adjustment function to alter appearance of the image in response to operator input.

5 43. An interface according to claim 38 wherein the first function includes a navigation function that generates in the first display an output showing location of a roving element, deployed in the patient, to the electrode structure.

5 44. An interface according to claim 38 wherein the first function includes a navigation function that generates in the first display a proximity-indicating output showing the proximity of a roving element, deployed in the patient, to the electrode structure.

5 45. An interface according to claim 38 wherein the interface manager includes an input to receive patient data identifying the patient and an output to process patent data as a data base record for storage, retrieval, or

manipulation.

46. An interface according to claim 45  
wherein the output processes data relating  
to the image in association with the patient data.

47. A method for examining myocardial  
tissue comprising the steps of

deploying an electrode structure in contact  
with myocardial tissue,

5 generating a display comprising an image of  
the electrode structure,

annotating the image to show an anatomic  
feature, and

10 causing the electrode structure to conduct  
a diagnostic or therapeutic procedure affecting  
myocardial tissue while the image is displayed for  
viewing.

48. A method according to claim 47  
and further including the step of ablating  
myocardial tissue.

49. A method according to claim 47  
wherein the display shows a real image of  
the electrode structure acquired by an imaging  
device.

50. A method according to claim 47  
wherein the display shows an idealized  
graphical image of the electrode structure.

51. A method according to claim 47  
and further including the step of altering  
appearance of the image in response to operator  
input.

52. A method according to claim 47  
and further including the step of altering  
an operating condition of the electrode structure in  
response to operator input.

53. A method according to claim 47

and further including the step of  
communicating operator input using the display to  
alter an operating condition of the electrode  
structure.